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## Air Operating Permit Excess Emissions Report Form Part II

Name of Facility	Shell, Puget Sound Refinery	Reported by	Tim Figgie
Date of notification	August 16, 2011	Incident type: breakdown/ upset/startup or shutdown	Upset
Start Date	August 16, 2011	Start Time:	12:00 AM (midnight)
End Date	August 16, 2011	End Time:	2:00 PM
Process unit or system(s): SRU3			

### Incident Description

On August 15, 2011 at approximately 11:30 PM the SRU3 TGTU tripped out due to high temperatures in the H2 reactor bed. The SRU3 was being put in hot-standby and during this process excess air got into the reactor. Excess air causes the TGTU to run off-ratio, resulting in the high bed temperatures. The process of putting the SRU3 in hot-standby is a step by step procedure executed through a PLC. Operators did not recognize the PLC holdouts on the Divertor valves preventing a re-couple of the unit. This caused excessive time delays in getting the unit back online and back on test.

Once the diverter valve was closed, N2 was added to the system to cool the reactor and the unit was restarted to be placed in hot-standby.

Amine Acid Gas (AAG) was not in the unit at the time of this trip. AAG had been removed at approximately 7:30 PM in preparation for moving the unit to hot-standby. The 12-hour rolling average SO2 reading was high from August 16 midnight to 2PM.

### Immediate steps taken to limit the duration and/or quantity of excess emissions:

AAG was not in SRU3. AAG was routed to SRU4.

Applicable air operating permit term(s): 5.8.15

Estimated Excess Emissions: Based on SO2 CEMS and calculated stack flow	Pollutant(s): SO2	Pounds (Estimate): 27
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The incident was the result of the following (check all that apply):

- ☐ Scheduled equipment startup
- ☐ Scheduled equipment shutdown
- ☐ Poor or inadequate design
- ☒ Careless, poor, or inadequate operation
- ☐ Poor or inadequate maintenance
- ☐ A reasonably preventable condition

Did the facility receive any complaints from the public?

- ☒ No
- ☐ Yes (provide details below)

Did the incident result in the violation of an ambient air quality standard

PSR0000562

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☒ No  
☐ Yes (provide details below)

Root and other contributing causes of incident:

Inadvertent trip of SRU3 during protective systems testing.

The root cause of the incident was:

(The retention of records of all required monitoring data and support information shall be kept for a period of five years from the date of the report as per the WAC regulation (173-401-615))

☒ Identified for the first time  
☐ Identified as a recurrence (explain previous incident(s) below – provide dates)

Are the emissions from the incident exempted by the NSPS or NESHAP "malfunction" definitions below?

☒ No  
☐ Yes (describe below)

*Definition of NSPS "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 60.2*

*Definition of NESHAP "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 63.2*

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):

The Operator was informed of the proper procedures to follow for transitioning the unit to hot-standby. In addition, Operations is investigating ways to automatically operate on ratio control including providing alarms.

Description of corrective action to be taken (include commencement and completion dates):

See above

If correction not required, explain basis for conclusion:

See above

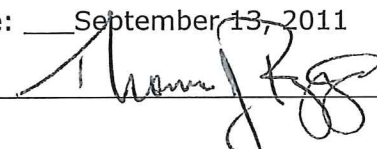
Attach Reports, Reference Documents, and Other Backup Material as Necessary. This report satisfies the requirements of both NWCAA regulation 340, 341, 342 and the WAC regulation (173-400-107).

Is the investigation continuing? ☒ No ☐ Yes

Is the source requesting additional time for completion of the report? ☒ No ☐ Yes

Based upon information and belief formed after reasonable inquiry, I certify that the statements and information in this document and all referenced documents and attachments are true, accurate and complete.

Prepared By: \_ Tim Figgie\_ Date: \_ September 13, 2011

Responsible Official or Designee:  Date: 9/13/11